

REMARKS

In the Office Action the Examiner noted that claims 1-6 are pending in the application, and the Examiner rejected all claims. By this Amendment, the Specification and claim 1 has been amended. No new matter has been added. The Examiner's rejections are traversed below, and reconsideration of all rejected claims is respectfully requested.

Double Patenting Rejections

In item 4 on pages 2-3 of the Office Action the Examiner provisionally rejected claims 1-6 under 35 U.S.C. §101 as claiming the same invention as that of "claims 1-5, 8-9, etc." of co-pending application Serial No. 09/815,345. The Examiner stated:

Claim 1 of the present application is very similar and coextensive in scope to claim 1 of application Serial No. 09/815,345. Claim 1 of present application has additional limitation of main beam and sub-beam being formed on the same track and a seek direction detecting signal between track cross signal and track error signal. However one of ordinary skill in the art knows that these signal are well known as shown by the prior art and generator for seek signal has not been defined in either specification at all.

The Applicant respectfully traverses the Examiner's double patenting rejection. MPEP §804(II)(A) states that "[i]n determining whether a statutory basis for a double patenting rejection exists, the question to be asked is: Is the same invention being claimed twice? 35 U.S.C. 101 prevents two patents from issuing on the same invention. 'Same invention' means identical subject matter." Miller v. Eagle Mfg. Co., 151 U.S. 186 (1984).

The Applicant respectfully submits that claim 1 of the present application and claim 1 of application '345 do not recite "identical subject matter." Indeed, the claims of the two applications differ in many different ways. Claim 1 of the present application recites "at least two sub-beam spots", which indicates that a plurality of sub-beam spots are possible, while claim 1 of application '345 recites "a single sub-beam spot", which indicates that a plurality of sub-beam spots are not possible. Claim 1 of the present application recites "an optical aberration" of the sub-beam spot(s) is in a **tangential** direction of the disk, while claim 1 of application '345 recites "the optical aberration is formed on the optical disk in a **radial** direction of the optical disk." Also, regarding the tangential and radial directions of the optical aberrations discussed in the present application and application '345, respectively, claim 1 of the present application recites "the main beam spot and the sub-beam spot are formed to be aligned along a same track of the optical disk", which is not the case in application '345, wherein the optical aberration is in a radial

direction of the disc, and therefore would not be "aligned along a same track of the optical disk."

Further, claim 1 of the present application recites a first signal processing portion to process a track error signal, a second signal processing portion to process a track cross signal, and a generator generating a seek direction detecting signal from a phase difference between the track cross signal and the track error signal. Claim 1 of application '345 recites a first signal processing portion to detect a track error signal, and a second signal processing portion to generate the seek direction detecting signal from the track error signal and other received signals, and therefore does not recite a generator generating a seek direction detecting signal from a phase difference between the track cross signal and the track error signal.

Further, regarding the Examiner's statement that the "generator for seek signal (sic) has not been defined in either specification at all," the Applicant calls the Examiner's attention to Figure 21 of the present application, which illustrates the generator of claim 1 of the present application. Also, paragraph [0079] of the present application describes said generator, which "generates a seek direction detecting signal from the phase difference between the TES signal and the TCS signal." The generation of the seek direction detecting signal from this phase difference would be understood by one skilled in the art. Additionally, as the generator is claimed in claim 1 of the present application, and also described in at least paragraph [0079] of the present application, the Applicant respectfully submits that whether a generator is defined in application '345 is simply not germane to the Examiner's rejection.

The Applicant respectfully submits that, for at least the reasons presented above, claim 1 of the present application and claim 1 of application '345 do not recite "identical subject matter," and therefore the double patenting rejection of claims 1-6 is improper. "Is there an embodiment of the invention that falls within the scope of one claim, but not the other? If there is such an embodiment, then identical subject matter is not defined by both claims and statutory double patenting would not exist." MPEP 804(II)(A). Thus, as claim 1 of the present application and claim 1 of application '345 each recites embodiments that do not fall within the scope of the other, the Applicant respectfully requests the withdrawal of the §101 rejection.

Objections To the Drawings

In item 5 on pages 3-4 of the Office Action the Examiner objected to the drawings under 37 C.F.R. §1.83(a). The Examiner stated:

The drawings must show *every feature* of the invention specified in the claims. Therefore, "a **second signal processing portion** to generate the **track error**

signal and a generator generating a seek direction detecting signal from a phase difference between the track cross signal and the track error signal must be shown or the feature cancelled from the claims. No new matter should be entered.

The Examiner then stated that "Unit 40 in fig. 6, only produces TCS, NOT the combination of TCS **AND** TES as claimed. Fig. 3-4 and 6 were elected on the phone [by Ms. Choi] as disclosed in action dated 11-11-03." The Applicant respectfully traverses the Examiner's objections to the drawings.

To begin, the Examiner has erroneously cited the second signal processing portion of claim 1 of the present application as generating a track error signal. The track error signal is processed by the first signal processing portion, and the track cross signal is processed by the second signal processing portion.

Secondly, regarding the Examiner's assertion that the feature of a generator generating a seek direction detecting signal from a phase difference between the track cross signal and the track error signal must be shown in the drawings, the Applicant would again like to call the Examiner's attention to Figure 21 of the present application, which clearly illustrates the generator at issue. Figure 21 shows the seek direction detecting signal generator receiving the track error signal that is output by the first signal processing portion, and the track cross signal that is output by the second signal processing portion, and then generating the seek direction detecting signal. Support for this figure is found in paragraph [0079] of the present application, which describes "a seek direction detecting signal generator" that "receives a track error signal (TES) from the first signal processor of FIG. 5 and a track cross signal (TCS) from a second signal processor as illustrated in any of FIGS. 6-10 or 16-20, and generates a seek direction detecting signal from the phase difference between the TES signal and the TCS signal."

Further, regarding the Examiner's statement that unit 40 in Figure 6 only produces TCS, and not the combination of TCS and TES as claimed, the Applicant respectfully points out to the Examiner that claim 1 of the present application does not recite the second signal processing portion 40 as producing the combination of TCS and TES. Rather, claim 1 of the present application recites "a second signal processing portion processing a track cross signal from the signals output from the second optical detector; and a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal." Therefore, the Examiner's assertion that the second signal processing portion 40 of Figure 6 is claimed so as to produce the combination of TCS and TES is erroneous.

Also, the Examiner is apparently indicating that because the claims relating to Figures 3-

4 and 6 were elected in response to the restriction requirement mailed on August 19, 2003, then the Applicant is limited to these figures regarding the disclosure of the present application. If this is indeed the intended meaning of the Examiner's assertion, the Applicant respectfully submits that this assertion by the Examiner is not valid. The election of claims 1-6 has no bearing on what portions of the specification and drawings are considered during prosecution of the application, but merely elects that **claims** 1-6 will be considered rather than all of the **claims** of the original application.

Therefore, because the second signal processing portion processing a track cross signal is clearly indicated in at least Figure 6, and a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal is clearly indicated in at least Figure 21, the Applicant respectfully requests the withdrawal of the Examiner's objection to the drawings.

Content Of Specification

In item 6 on page 4 of the Office Action the Examiner objected to the disclosure of the specification, indicating that the specification needs to be updated with respect to information on the related application.

Paragraph [0001] of the specification has been amended to include the information regarding the related application, and therefore the Applicant respectfully requests the withdrawal of the Examiner's objection to the disclosure.

Claim Rejections Under 35 USC §112

In item 7 on page 4 of the Office Action the Examiner rejected claims 1-6 under 35 U.S.C. §112, first paragraph, as "containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed invention." The Examiner states:

Page 10, paragraph 28 simply states that "second signal processing portion 40 outputs track cross signal (TCS)." The specification does not disclose at all that the second signal processing portion generates the seek direction detecting signal at all. And that a generator [not defined] generates a seek direction signal from a phase difference between the track cross signal and the track error signal, as claimed.

Much of the Examiner's statement regarding page 10, paragraph 28, is apparently directed to the co-pending application '345, as the language cited by the Examiner is not found in the cited section of the present application (also, paragraph 28 is not on page 10 in the present application). The language cited by the Examiner is found in co-pending application '345 in paragraph 28 on page 10. The Applicant respectfully submits that the Examiner has confused the two applications. Further support is found for this assertion in the next sentence by the Examiner, in which the Examiner states that the "specification does not disclose at all that the second signal processing portion generates the seek direction detecting signal at all." Claim 1 of the present application does not recite a second signal processing portion generating the seek direction detecting signal. Claim 1 of application '345, however, does recite "a second signal processing portion to generate the seek direction detecting signal from the second electrical signals and the track error signal." Therefore, the Examiner has apparently confused the two applications in this Office Action.

Further, the Examiner's statement that a generator that generates a seek direction signal from a phase difference between the track cross signal and the track error signal is not disclosed in the specification is not correct. As pointed out previously in this Amendment, the generator is disclosed in at least Figure 21 and paragraph [0079] of the present application.

Therefore, as the Examiner has apparently cited portions of co-pending application '345 in place of the present application, as well as asserted that the clearly disclosed generator of the present application was not disclosed, when it most clearly was, the Applicant respectfully requests the withdrawal of the §112, first paragraph rejection.

In item 8 on pages 4-5 of the Office Action the Examiner rejected claims 1-6 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. The Examiner states:

Claim 1, lines 18-21 "the second signal processing portion generates track cross signal and a generator [not defined] generates a seek direction detecting signal from a phase difference between the track cross signal and the track error signal" is confusing and unclear. Since **both** inner and outer portion of the photodiodes are part of second detector [2nd embodiment] only, which only produces TCS [see fig. 6, output of unit 40], it is not clear how they can also produce seek signal without the help of TES signal.

The Examiner seems to be under the assumption that the second signal processing portion generates the seek direction detecting signal, according to the Examiner's statement that "it is not clear how they can also produce seek signal [sic] without the help of TES signal."

However, claim 1 of the present application clearly recites "a second signal processing portion processing a track cross signal from the signals output from the second optical detector; and a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal." Therefore, the second signal processing portion does not generate the seek direction detecting signal, either with or without the help of the TES signal. Rather, the second signal processing portion processes a track cross signal, and the generator generates the seek direction detecting signal from a phase difference between the track cross signal and the track error signal. Thus, the TES signal is used to generate the seek direction detecting signal. Further, the Applicant notes that the Examiner has misquoted the recited language of claim 1 of the present application.

Therefore, as claim 1 of the present application does not recite the features as presented by the Examiner in this rejection, the Applicant respectfully requests the withdrawal of the §112, second paragraph rejection.

Claim Rejections Under 35 USC §102

In item 9 on pages 5-6 of the Office Action the Examiner rejected claim 1 under 35 U.S.C. §102(e) as being anticipated by AAPA (Applicant's Admitted Prior Art). The Applicant respectfully traverses this rejection by the Examiner.

Claim 1 of the present application, as amended, recites:

An apparatus generating a seek direction detecting signal for an optical pickup, comprising:

a light dividing unit dividing an incident light beam into at least two beams including a main beam and a sub-beam so that at least two beam spots, including a main beam spot and at least one sub-beam spot having an optical aberration, can be focused in a track direction of an optical disk, wherein a direction of the optical aberration of the sub-beam spot is a tangential direction of the optical disk, and the main beam spot and the sub-beam spot are formed to be aligned along a same track of the optical disk;

an optical detector unit including:

a first optical detector receiving the main beam, and converting the portions of the received beam into electrical signals independent of each other, and

a second optical detector receiving the sub-beam and converting the portions of the received beam into electrical signals independent of each other, wherein the first and second optical detectors comprise a plurality of light receiving portions;

a signal processing portion including:

a first signal processing portion processing a track error signal from the signals output from the first optical detector, and

a second signal processing portion processing a track cross signal from the signals output from the second optical detector; and

a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal.

Therefore, "the main beam spot and the sub-beam spot are formed to be aligned along a same track of the optical disk." In other words, the main beam spot and the sub-beam spot are disposed at approximately the same radial distance from the center of the optical disk. As stated in the specification in paragraph [0080], since the main beam spot and the sub-beam spot are disposed linearly, there is an advantage in that high-speed access is possible.

This is in direct contrast to AAPA, in which the main beam and first and second sub-beams are not formed to be aligned along a same track of the optical disk. As clearly shown in the prior art illustration in Figure 1 of the present application, and also described in at least paragraph [0005] of the present application, each of the sub-beams are disposed so as to be $\pm 1/2$ track pitch off the main beam in the radial direction of the optical disk. Disposing the sub-beams in such a manner creates the potential problem of cross erasures occurring to track signals in tracks that are adjacent to the track on which the main beam is disposed.

Therefore, AAPA does not disclose the feature of "the main beam spot and the sub-beam spot are formed to be aligned along a same track of the optical disk." Accordingly, AAPA does not disclose every element of the Applicant's claim 1. In order for a reference to anticipate a claim, the reference must teach each and every element of the claim (MPEP §2131). Therefore, since AAPA does not teach the features recited in independent claim 1, as stated above, it is respectfully submitted that claim 1 patentably distinguishes over AAPA, and withdrawal of the §102(e) rejection is earnestly and respectfully solicited.

Claim Rejections Under 35 USC §103

In items 10-14 on pages 6-9 of the Office Action the Examiner rejected claims 2-6 under 35 U.S.C. §103(a) as being unpatentable over AAPA as applied to claim 1 and in view of U.S. Patent No. 6,147,952, issued to Watabe (hereinafter referred to as "Watabe").

Claims 2-6 depend from claim 1 and include all of the features of that claim plus additional features which are not taught or suggested by AAPA or Watabe. As presented in the preceding argument, AAPA does not disclose the feature recited by claim 1 of "the main beam spot and the sub-beam spot are formed to be aligned along a same track of the optical disk." Further, this deficiency by AAPA is not cured by Watabe. Therefore, it is respectfully submitted that claims 2-6 also patentably distinguish over AAPA and Watabe, either taken alone or in combination.

Examiner's Response To Arguments

In item 16(C) on pages 10-11 the Examiner replied to the Applicant's request for the Examiner to address the Applicant's February 9, 2004 traversal of the §102 rejection, which the Examiner had failed to address in the previous Office Actions. In the Amendment filed on February 9, 2004, the Applicant stated:

However, contrary to the assertions made in the Office Action, AAPA fails to teach or suggest, "a generator generating the seek direction detecting signal from a phase difference between the track cross signal and the track error signal," as recited in independent claim 1. Rather, AAPA limits its description to recognizing that the **track cross signal** can be detected by using the phase differences. Emphasis added. AAPA fails to teach or suggest detecting the phase difference between "the track cross signal and the track error signal," as recited in independent claim 1. Rather, the phase difference of the push-pull signals S_{1d} and S_{2d} are described. Although AAPA provides that the first and second sub-beam B_{S1} and B_{S2} are disposed $\cap \equiv \parallel$ track pitch off the main beam B_M , nothing teaches or suggests generating "the seek direction detecting signal from the phase difference between the track cross signal and the track error signal," as recited in independent claim 1.

The Examiner addresses this argument in the current Office Action by simply stating, "Careful examination of the specification shows that this is NOT true." The Applicant respectfully submits that the Examiner has still not satisfied the requirement to answer and address all traversals as noted in at least MPEP 707.07(f). The Examiner has merely stated, with no apparent evidence to support the statement, that careful examination of the specification shows that the assertion by the Applicant is not true, which provides no substance whatsoever that can be rebutted by the Applicant.

Summary

In accordance with the foregoing, claim 1 has been amended. No new matter has been presented. Thus, claims 1-6 are pending and under consideration.

There being no further outstanding objections or rejections, it is respectfully submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 503333.

Respectfully submitted,

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